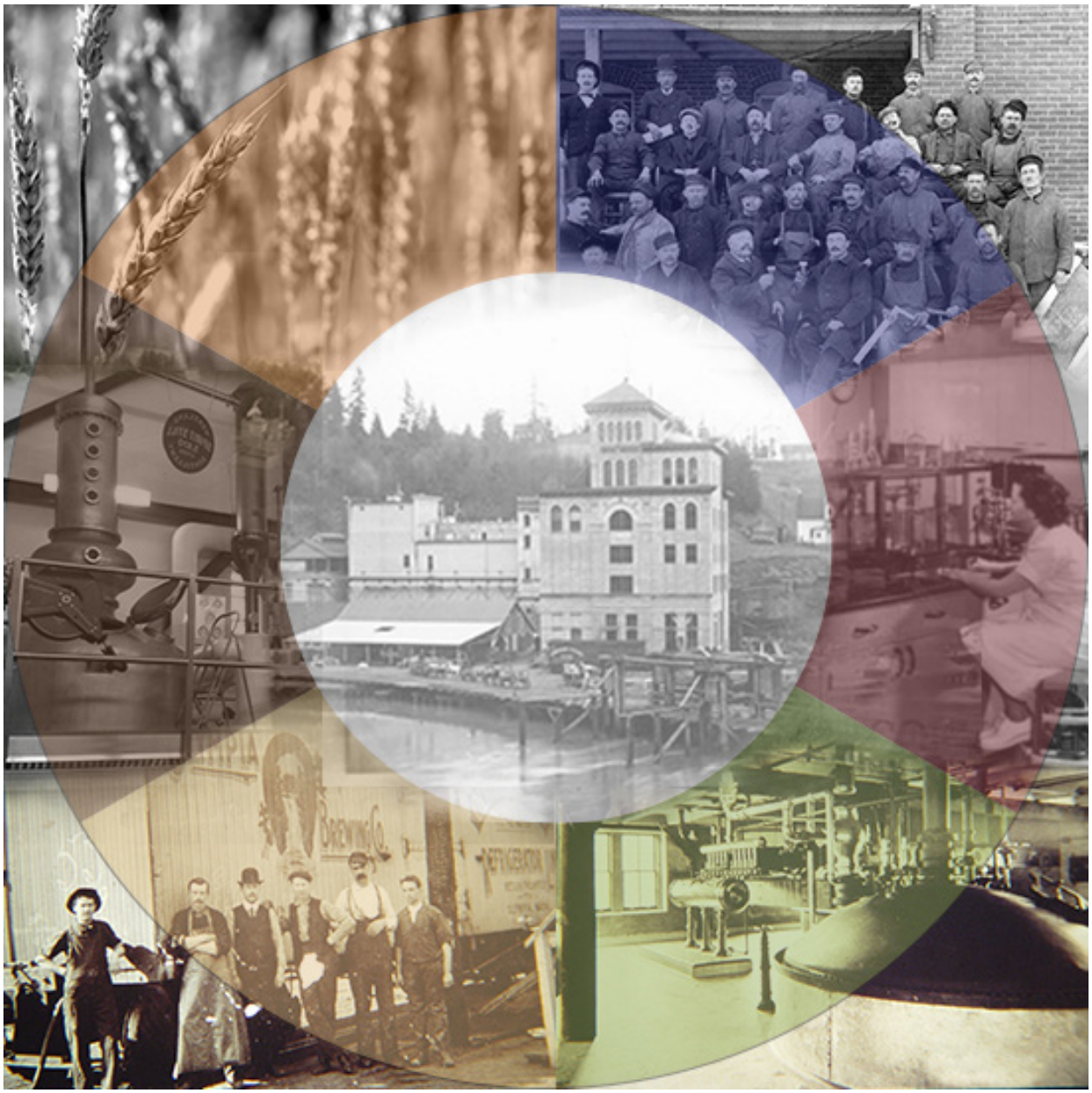

Tumwater Craft Brewing and Distilling Center Study

12 June 2015

SPINNAKER STRATEGIES

CITY OF TUMWATER
Washington's First Community.

CARDINAL ARCHITECTURE PC

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SUMMARY

The City of Tumwater wants to create exciting and vital new projects on the south shore of Capitol Lake at the site of the historic Olympia Brewery. The development sites on the north side of Custer way combine natural beauty, complex history, industrial heritage, 19th and 20th Century transportation, many cultures, and challenging topography. The resources are many, and the development challenges are just as plentiful.

Much of the historic property is owned by private land owners or the Olympia Tumwater Foundation. The City's plan is to use its municipal leadership role to provide development support. There are two distinct paths for providing this support. One is to create a Tumwater Craft Brewing & Distilling Center that would be a regional teaching, research, and industry cluster to provide workforce training and support for the expanding craft brewing & distilling field. Two is to consider public projects that would enhance development of the Capitol Lake site such as renovating the Historic Brewery Tower, extending the existing pedestrian trail system, building pedestrian boardwalk access along Capitol Lake, constructing a pedestrian bridge across the Deschutes River, and constructing a parking structure. The Cities of Tumwater & Olympia will work together to develop the public enhancements around Capitol Lake.

Cardinal Architecture and Spinnaker Strategies were selected to evaluate paths for supporting development at the site of the Historic Olympia Brewery. This study specifically addresses the Tumwater Craft Brewing & Distilling Center. The study will cover the project context, market demand, the project program, project details, center organization, public investment, next steps and includes a cost plan.

PURPOSE OF THE STUDY & BRIEF SITE HISTORY

The history of commercial beer brewing in Tumwater began in 1896, when Leopold Schmidt started the Capital Brewing Company on the shores of Tumwater Falls and the Deschutes River. He was drawn to the location by the quality of the artesian wells and the ability to ship products by boat throughout the Pacific Northwest. The company became the Olympia Brewing Company in 1902, and resumed operation at this site until 1915 when prohibition began in the State of Washington. Operations continued in 1934 after prohibition was repealed, and brewing operations were moved south to the top of the falls. The Olympia Brewery continued operations on the upper site until the company was sold in 1983. The brewery continued under ownership by several national beer companies. Commercial beer brewing ceased at this location in 2003.

Tumwater's Olympia Brewing site includes the historic buildings down on Capitol Lake, the Schmidt House and multiple buildings just north of Custer Way, and the more contemporary brewery and warehouse buildings south of Custer Way. The focus of our work will be the properties north of Custer Way. This location is challenging for many reasons including multiple land ownership, steep topography, and limited access. The location's cultural history, industrial legacy and natural beauty, however, make

this a very compelling development site, and the success of the Tumwater Craft Brewing and Distilling Center and the success of the site's development will depend on this strong, historical and meaningful sense of place.

The history of brewing on this site; the interest of the community in reviving brewing on this site; and the proximity to Olympia, Seattle and Portland; make the site a fantastic location for a regional Craft Brewing and Distilling Center. All of the ingredients for brewing and distilling are produced in the State of Washington, and the Center will be a regional showcase for all of the state's agricultural products. The purpose of the Craft Brewing & Distilling Center is to establish the historic Tumwater site as the regional focus of craft brewing and distilling, research, education, workforce development and public information. The center will be a statewide gathering spot for all things for the brewing and distilling industry. This study presents a successful path for developing the center.

The study is funded by the State of Washington Community Economic Revitalization Board with support from South Puget Sound Community College, Port of Olympia, and the City of Tumwater.

PROJECT TEAM

The project team included:

John Doan, City of Tumwater City Administrator

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Tim Smith, City of Tumwater Planning Manager

Chuck Denney, City of Tumwater Parks & Recreation Director

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The Design Team included:

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Trish Drew, Drew Collaborative Group, Cost Analysis

Dan Morrow, Swenson Say Faget, Structural Engineer

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Marc Errichetti, Sitewise Design, Civil Engineer

Mary Thompson, Artifacts, Historic Consultant

PROJECT PROCESS

The process for this study included specific research into the brewing and distilling business, including craft scale and large scale operations. This included on-site research at regional brewing and distilling facilities, telephone and in-person interviews with local, regional, and national business leaders, telephone and in-person interviews with local and regional public and private partners, and telephone and in-person interviews with local, regional and national academic leaders.

For the Craft Brewing & Distilling Center facility research, on-site research at regional brewing and distilling facilities was invaluable. Building and Fire Code research was supplemented by telephone interviews with code officials and mechanical/electrical engineers. In addition, we consulted the "Recommended Fire Protection Practices for Distilled Spirits Beverage Facilities," Third Edition, prepared by the Distilled Spirits Council of the United States Inc.. The facility design included in this study and the accompanying Cost Analysis is based on this realistic safety research.

CRAFT BREWING & DISTILLING CENTER ORGANIZATION

The organizational wheel below illustrates a concept for developing and operating the Craft Brewing & Distilling Center. The concept relies on a diverse team of cooperating partners that bring their resources and needs to the center. The provenance and history of the Tumwater brewing site united with the stability of the City of Tumwater, Port of Olympia, Olympia Tumwater Foundation, South Puget Sound Community College, Industry Partners and Property Owners will create a strong enterprise. The new Craft Brewing & Distilling Center can leverage all of this potential into a regional workforce, agricultural, and industrial gathering place.

INDUSTRY TRENDS

The increasing popularity of craft beer, spirits and hard cider is part of a larger, longer shift towards quality food and beverages made locally. It will not be enough for Tumwater simply to "surf" these trends. It needs to become one of the leaders in showing the way to quality.

THE SEARCH FOR AUTHENTICITY

In the mid 1960s, about the same time that Rachel Carson published the Silent Spring and Ralph Nader Unsafe at Any Speed, Adelle Davis spoke on television programs about the need for more nutritious and healthy foods. Combined with travel abroad, environmental conservation, and distrust of big business, this set the basis for the locavore movement, a push for food with more natural ingredients, made locally with old-style ways. Not many years later in 1971, Chez Panisse, now a restaurant famous nationally, opened in Berkeley with California cuisine cooked with fruits and vegetables grown in a kitchen garden next door or sourced with heritage varieties from nearby farms. The demand for healthy and tastier foods has grown only stronger with scares about food imported from Mexico and China.

But it is no longer enough just to be healthy and local. Consumers want more variety and better quality food. Stumptown, an award winning coffee roaster in Portland, has begun to do to Starbucks what Starbucks did 30 years ago to Hills Brothers and Folgers: pick away at market share by positioning the big brand as a mass-produced product without nuance of flavor.[1] There's been an equivalent evolution in craft beer, with breweries not only offering more kinds and seasonal offerings, like pumpkin beer at Halloween, but also premium products like five- and six-dollar pints targeted at connoisseurs. In the past, companies relied on their master brewers to make these changes. Now, as they scale up, they need better and more consistent production to carry them out.

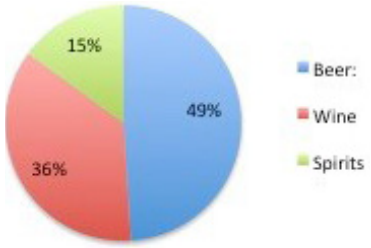
There is also an element of story telling in the attraction of craft brewing and distilling. People want to know who is behind the brands, the personalities and the stories of heartfelt dedication to quality. Tumwater's history and buildings give it a kind of instant credibility in this, but it will be important to pair the education there with companies known for their quality.

[1]Starbucks has responded with an experimental new store that stresses quality and the provenance of the coffee beans. See Ho, Vanessa, "Inside Starbucks' New Willy Wonka Shop and Roastery", Seattle PI, 12/5/2014.

SIZE OF THE DIFFERENT SUBMARKETS

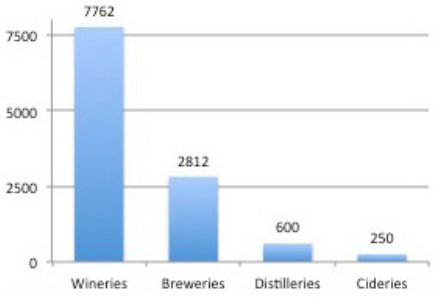
People tend to clump the creation of craft beer, spirits and hard cider together as a single industry, but in fact the markets for each are much different in their size and stage of evolution. Fortunately, all three markets are growing rapidly.

2012 U.S. ALCOHOLIC BEVERAGE SALES



This chart shows that beer sales still account for about half of total alcohol consumption by dollar volume of sale. Wine accounts for a third of the market and spirits for a sixth. Hard cider consumption is minuscule, only about one-percent, but that consumption is growing so rapidly that hard cider may soon be three or four percent of the total. The bar chart shows that there are about five times as many breweries as distilleries and about ten times as many breweries as hard cideries.[2]

NUMBER OF U.S. LOCATIONS, 2013



The greatest demand for skilled people will come from beer. According to the Brewers Association, the leading association for craft producers, last year craft beer accounted for 7.8 percent of all beer sold by volume and 14 percent of all beer sold by value. This indicates that the value of craft beer is almost twice that of mass beer, a healthy margin that will encourage more growth. Last year the overall volume of all kinds of beer sold fell by about two percent, while the volume of craft beer sold increased by 17 percent. The industry opened an average of 1.5 craft breweries a day last year. Some of this growth was geographic, as more craft breweries opened in the South, but much came from the internal development of relatively mature markets. Oregon and Washington, for example, have the second and third largest number of craft breweries after California, but together last year they opened 140 new craft breweries, more than the total number of craft breweries in the Deep South.

NUMBER OF U.S. LOCATIONS BY STATE, 2013

Source: Craft Brewing Alliance

Nationally, overall spirits consumption increased about 30 percent between 2003 and 2012, fueled by the development of premium products, the resurgence of bourbon, and new products and flavors. Whiskey now account for a quarter of

[2] Based on statistics from the U.S. Beverage Alcohol Forum, the Brewers Association, the American Distillers Alliance, and Cyder Market, LLC.

all the spirits sold, with American, Canadian and Irish whiskey leading the growth of all categories, products that take especial skill to create. In 2012, the greatest growth in the market was for super-premium liquor, the niche that craft distillers operate in.[3]

NUMBER OF U.S. DISTILLERIES, 2013

Source: Map by Spinnaker Strategies, using directory of distilleries from the American Distilling Institute

The map shows the distribution of distilleries by state, including about 600 operating distilleries and about 200 under construction that will open in the next year. The leading states, by number of distillers operating or under construction, are Washington (85), California (61), New York (58), Oregon (38), Colorado (38), Texas (33), Michigan (22) and North Carolina (20). Note the similar state patterns of popularity of brewing and distilling. Washington State is an industry leader in craft distilling, partly because there is demand here for quality foods and beverages, and partly because there is permissive legislation that allows distilleries to sell on site.[4] In general, the craft distilling industry is far less organized than craft brewing, but there are an increasing number of conferences and publications that draw distillers together. Tumwater could become a place they meet.

The hard cider industry is so small that there are far fewer reliable statistics on it, but one survey puts the number of producers at about 250 nationwide. Various sources suggest that consumption is doubling about every year now. Importantly, the big beverage makers see growth potential and are jumping in to promote it. In 2013, C and C Group bought what was then America's largest cider maker, and has since expanded production and marketing. The largest American cider producer is now Angry Orchard, made by the Boston Beer Co., maker of Sam Adams. AB InBev, maker of Budweiser and Stella Artois, has also jumped in with its Johnny Appleseed brand, while Miller Coors now makes and sells Smith and Forge.

According to the Northwest Agricultural Business Center at Mt. Vernon, Washington State produces about ten percent of the hard cider nationally.[5] Most of the small cideries have been located in Vermont, New York, Michigan, Ohio and Oregon--places with the heritage apples necessary to make better ciders, but now with the big beer companies entering the market and making cider with regular dessert apples, production has been shifting to other places. Some of those big companies may come here, since Washington State produces about two-thirds of the apples grown in the U.S. While hard-to-find bitter apples are an important element in better ciders, it may take a number of years of consumer education before their supply truly becomes a limiting market factor. In the meanwhile, apple producers here will probably begin to replant. It is also likely that with about 45 hard ciders makers in the Northwest, another

[3] Source: Beverage Information Group Handbook and Nielsen.

[4] "Craft" distilling in Washington State law refers to WAC 314-28-050 and producing 50,000 gallons or less of spirits per year

[5] See "All Things Cider, Northwest Agricultural Business Center, http://www.agbizcenter.org/business-services/classes-and-workshops/all-things-cider

30 to 50 could open in the next five years. This will be a small but important market for a new center at Tumwater.

CONSOLIDATION

There are signs of consolidation in craft beer, and talk of this among leading craft distillers. Part of the consolidation in craft beer is coming from big companies like AB InBev acquiring companies, and part from leading independents getting bigger. AB InBev now owns directly or has significant partnership interests in Widmer, Red Hook, Kona, Ten Barrel, Elysian, Goose Island, Redbridge and Old Dominion craft breweries. Larger independent breweries with more than one location include Lagunitas, New Belgium, Stone, Sierra Nevada, and Deschutes. The economies of scale come in purchasing, marketing, training, production and distribution. Two years ago the HR managers at Sierra Nevada and Deschutes Brewing started a monthly conference call on training issues with a handful of other companies. Today 140 people participate in that call.

Leading craft distillers believe their industry will consolidate as well, in part because they believe there is a day of reckoning coming when many consumers now buying local spirits will come to believe that some brands are not worth the premium price. These craft distillers say that it is possible to make a superior product, but that this requires skills and financing that many small distillers simply do not have. The financing challenge comes from more expensive machinery and the need to age liquors like bourbon and whiskey, tying up as much as one-third of the total investment in work-in-progress. A production mistake can lead to very costly problems. Some of the leading craft distillers in Washington State say that their industry will need fewer workers than craft brewing, but that the risks of a producing a bad run will make them more likely to hire trained workers.

COMPETING CENTERS

There are now more than 60 centers for brewing and distilling education in North America and Europe, about 50 of these in North America. At current rates of growth, in five years there will be about 20 more. A survey of master brewers, backed by discussions with some of the state's leading distillers, found considerable skepticism about the value of many of these programs. To be successful, a new center will need to offer a different kind of education, one that carries weight with industry. Here is a list of those programs:

CENTERS FOR BREWING & DISTILLING EDUCATION

American Society of Brewing Chemists
Appalachian State University
Asheville Buncombe Community College
Auburn University
Blue Ridge Community College
Brew Lab
Central Michigan University
Central Oregon Community College
Cicerone Certification Program
Colorado School of Mines
Colorado State University
Cal State University Channel Islands
Drexel University
Erie Community College
Florida International University
French Institute of Drinks, Brewing and Malting
Heriot Watt University
Horry Georgetown Technical College
Institute of Distilling and Brewing
Johnson and Wales University
Kwantlen Polytechnic College
Madison Area Technical College
Metro Denver University
Morrisville State University
Muskegon Community College
Nash Community College
North Carolina State University
Niagara College
Olds College
Oregon State University
Paul Smith's College
Pennsylvania State University Schuykill
Portland State University
Regis University
Rockingham Community College
Southern Illinois University
San Diego State University
Scandinavian School of Brewing and Distilling
Siebel Institute
Simon Fraser University
Sonoma State University
South College
Southern Illinois University
Stevenson University
Technical University of Munich
Thompson Rivers University
University of Wisconsin Madison
University of Wisconsin Stevens Point
University of British Columbia
University of California Davis
University of California San Diego
University of New Hampshire
Virginia Polytechnic University
VLB Berlin
Weihenstephan University
Western Michigan University
Washington State University

LEADING PROGRAMS, REGIONAL COMPETITORS

NORTH AMERICAN BREWING & DISTILLING PROGRAMS

Source: Technical committee of the Master Brewers Association of the Americas and additional research by Spinnaker Strategies

The world's leading programs are in Europe. These include Weihenstaphen, VLB Berlin and the Tech University of Munich in Germany, and Heriot Watt University and the Institute of Distilling and Brewing in Great Britain. Top programs in the United States include UC Davis, Oregon State University, and the Siebel Institute in Chicago. Many of the graduates of these top programs go to work for AB InBev or Miller-Coors, since these companies pay higher salaries that make it possible for graduates to pay back their student debt.

On the West Coast, there are four centers in British Columbia, three in Washington, three in Oregon and five in California. Besides UC Davis and Oregon State University, UC San Diego is gaining recognition. The brewing certificate program at Central Washington University in Ellensburg, WA is less well known.

A 2014 survey of more than 350 members of the Master Brewers Association found that while many have great respect for the established programs in Europe, at UC Davis and at Oregon State University, they question the teaching credentials, course content and graduate quality in many of the other programs. A number of the respondents said that for graduates of the two-year programs, engineering skills are almost as important as an understanding of lab science. A number of respondents called for much greater vetting of graduates and creation of a "bar exam" to test their knowledge. The problem is that the industry does not have the resources to vet so many programs.

Further, many if not most of the established programs are targeted at preparing graduates to become mid-level managers and master brewers-in-training, and not in production, equipment repair or quality control, let alone business operations, marketing, and customer service. And yet for every mid-level manager hired with a two- or four-year degree, there are probably five to ten production jobs. One master brewer overseeing three different well-known brands said that he most needs people with millwright skills, the ability to keep a production line going around the clock, to diagnose problems and fix them on the fly. The survey of master brewers found that some companies have created training goals with their employees but not followed through on these, either because they do not have time or do not know how. Turnover is a problem, with a number of mid-level employees quitting to start their own companies, and lower skilled employees leaving to go work in another industry. The lack of standardized credentials means that the skills they do have do not travel well, a problem in getting people to commit to a career in the industry. A new center here that provides practical, portable credentials will help the industry grow, by providing a steadier, more committed source of labor. This includes both lower-level workers and those

with very specialized skills, capable of running a production run of very high-value spirits. With the right kind of offerings, a new program at Tumwater should be able to serve two kinds of students: those who want to enter the industry, and those already on the job.

Interestingly, we found few instances of incubators attached to the competing centers, which is an opportunity at Tumwater. Metro Denver University now has a brew pub in its student center that will provide opportunities for student employment, and the Brooklyn Brewery is now in partnership with the Culinary Institute of America to run its brewing program at Hyde Park, NY. There is an opportunity at Tumwater to integrate academia and industry from the start, either co-locating the educational facilities with a contract brewer or other larger company that can provide hands-on experience for students, or alongside or near an incubator center with start-ups drawn by the center's expertise and steady provision of talent. Proximity to talent has been a major reason for software companies to locate in the center cities of Seattle and San Francisco, and for leading West Coast and Colorado craft breweries to open East Coast operations in Asheville, where there is an established beer industry. Tumwater could become the same kind of magnet.

RELEVANT TRENDS IN HIGHER EDUCATION

There are several trends in higher education that show the need for a different, more innovative approach at Tumwater. One of these is the growing mountain of student debt that is causing students to look at the return-on-investment of their tuition and lost wages. The second is a flight to quality, of employers hiring only from the best-recognized schools. A third trend is the increasing number of distance education or on-line programs, a way to compete on price. And a fourth trend is competency-based credentialing, badges and certificates issued for very specific, practical skills. Microsoft and Oracle do this, offering certificates for hundreds of different software programs, for which preparation is available through a variety of providers. Both South Puget Sound Community College and Skagit Valley College have participated in this to a certain extent, South Puget Sound through its AirWa program for aeronautics manufacturing, and Skagit Valley through its Center for Excellence in Marine Manufacturing. At the Marine Manufacturing School, students get union certificates for things like welding, machining and electrical wiring, certificates that bring known wages.

A "badges" program would allow students to quickly enter the industry. Additional badges could include things like bottling and packaging, malting, food safety, grist, materials handling, grain storage, project management, business management, distribution, delivery, and even individual products like bourbon or the use of bitter apples in hard cider.

There is opportunity for Tumwater to distinguish itself and leap past competitors by offering performance-based credentials or “badges” for which the requirements have been created in consultation with the Master Brewers Association, the Brewers Association or other well-recognized groups. With such a system, students could start working with just a few badges and add more as they worked. The initial focus should be on the skills most needed for production. Tumwater would not have a monopoly in offering the badges, for other schools would begin teaching to these requirements as well, but it would form a relationship with industry that would translate to a stronger program.

South Puget Sound Community College is interested in exploring these possibilities, particularly if the college can build its program for scientific and technical training similar to the AirWA program it created for aeronautics training.[6] The Food Science Department of Washington State University is also interested in being an educational partner here, particularly if this program links to its academic programs in fermentation science

CONTINUING EDUCATION

Brewing and distilling is still a young industry that takes a collegial approach to sharing information. The brewers’ survey indicates that many rely on calling their counterparts at other companies when they need help with a problem. Various state associations meet between the annual meetings that managers attend to hear technical papers. Managers are spending more and more time on food safety and permitting issues. With the region’s concentration of talent and its proximity to the state capitol, Tumwater has an opportunity to become a gathering place for these meetings.

There is opportunity to convene here, not only to discuss company-level issues, but to discuss how to promote and grow the entire industry, how to move it forward. For government, a new center at Tumwater will advertise the City and the State’s leadership in helping grow new industry, in being a partner with business. A restored tower lit with the name of the center will advertise this day and night.

COMPARABLE REGIONAL WINE CENTER IN WALLA WALLA

Tumwater is not the first place to promote industry through a partnership of civic, educational and economic development agencies. A similar and well-established example is the The Center for Enology and Viticulture at Walla Walla Community College which provides college-level education, serves as a research station, and acts as a convening place for industry leaders. Port of Walla Walla buildings near the center provide a place to incubate and grow new wineries.

[6] This appears to have been developed in part with funds from the National Science Foundation through its program for “Advanced Technological Education”.

Walla Walla's model demonstrates the positive impact that higher education can have on industry growth and regional development. Through challenging economic times, the Walla Walla regional economy has continued to out pace the state and nation in retail sales, jobs created, and firm growth.[7] Two key public sector players helped to catalyze investment there, Walla Walla Community College and the Port of Walla Walla.

In 2000, Walla Walla Community College founded The Center for Enology and Viticulture. Since that time, over 1,600 students have completed the program, which now offers both associate degrees and certificates in viticulture, enology and the wine business. The program's "College Cellars" business provides students with hands-on experience managing the tasting room and selling the school's product. Profits from the sale of student-made wine go back into the purchase of equipment. A private testing lab is located on site to provide free and convenient chemical testing for the program as part of a facility lease agreement.

The Port of Walla Walla provides additional support for the industry by operating an incubator for wine start-ups and by leasing space to established wineries. The incubator space is specifically designed for wine production, and includes tall ceilings, cold storage, crush pads, retail entrances and tasting rooms. The spaces have limited production and storage capacity so small businesses would intentionally outgrow them. Leases include a graduated rent schedule and are limited to a maximum of six years. Entrepreneurs provide their own equipment. These incubator facilities have been at full capacity since they opened. Many tenants are former graduates of the College's Enology and Viticulture program. The Port also leases space to a 500,000 SF wine distribution center.

This year, a new Wine Science Center will open in nearby Richland, with a focus on sustainability. The partners and funders for this new center include Washington State University, the Washington State Wine Commission, the State of Washington, and the US Economic Development Administration, and various private wineries and growers. It is primarily a research facility with a teaching and extension function ties to the WSU mission. There is a component of the Wine Science Center that serves as a gathering for various wine industry organizations. The State Wine Commission facilitates a charge paid by the wine industry that helps fund the center.

[7] Alabdi, Barah, Aqeel Kadasah, Tosha Knopp, Ashton Miller, and Reannan Ortman. Cluster Analysis of the Wine Industry in the Walla Walla Valley Region BADM 585 – Strategy, Competitiveness, and Economic Development March 17th, 2014. Accessed on 4/15/2015. http://www.ewu.edu/-Documents/CBPA/MBA/Walla%20Walla%20region%20and%20Wine%20Cluster.pdf

CONNECTION TO AGRICULTURE

While craft beer and spirits are often associated with urban markets, grain sourcing will be important in management and operation of this center. Two major components of beer and spirits are barley and hops, and Washington state is a national leader in those. Beyond the production of traditional commodity crops on the east side of the mountains, there is now production of high-value, specialty crops in Puget Sound targeted specifically at this craft production. Coupled with a regional push to bring farming back to South Puget Sound, and to preserve land threatened with development in the Skagit Valley, the craft brewing and distilling industry has become a landscape-based industry.

There is already extension research on local grains going on at the Mount Vernon Northwest Washington Research and Extension Center, an Extension of Washington State University, where more than 10,000 varieties are being tested. Directed by Dr. Stephen Jones, the center serves the agricultural, horticultural, and natural resource science interests, and specializes in developing baking and brewing grains in the Skagit Valley. The center's Bread Lab is a shared operation supported by WSU, industry leaders like King Arthur Flour, and the Port of Skagit. This center's focus is expanding markets to take advantage of the local and regional agricultural potential. With a focus on production, a new center at Tumwater can be a natural complement for the ongoing ingredient research in Mt. Vernon.

The mission of WSU Extension is to "engage people, organizations and communities to advance knowledge, economic well-being and quality of life by fostering inquiry, learning, and the application of research." The Extension leadership has expressed interest and support for the Center project and sees opportunities for economic and community development, building markets for Washington's grains and hops in the brewing and distilling industries, and supporting workforce development by being a conduit to other parts of the food and crop science parts of the University. Thurston County Extension staff were involved in the original conceptualization of the Center. The Center could be focus for convening brewers, distillers, grain and hops growers, and others involved in the supply chain with support from WSU Extension, consistent with their mission.

WORKFORCE EXPANSION

The Craft Brewing and Distilling Center would include an education component being developed by South Puget Sound Community College as a certificate program that could readily evolve into a two- or four-year program focused on workforce development to support the expanding craft industries. The Center could play a similar role in growing the craft brewing and distilling industry as the enology and viticulture program at Walla Walla Community College has had in the flourishing Washington wine industry.

Working with economic development agencies and the Port of Olympia, the Craft Brewing and Distilling Center would include brewing and distilling incubators along with private breweries, distilleries, and restaurants that would take advantage of the proximate workforce and support the interaction between training and industry. The Center would be a major gathering place for industry organizations of brewers and distillers, and agriculture interests involved in the State's specialty barley, grains, and hops industries. The Center would also be a place for the general public and tourists to visit in order to grow awareness of the industry and the value of the crops that go into these craft products.

The Craft Brewing and Distilling Center's economic and workforce impact was studied by Dr. Riley Moore of St. Martin's University in June 2015. Two scenarios were analyzed for economic impacts, the education program only and an expanded scenario with a full spectrum of complementary uses.

The total workforce and economic expansion potential of the Craft Brewing and Distilling Center was 662 jobs and $101,190,599, using conservative estimates. This includes the educational component and a small-scale version of the potential for expanded business, restaurant, retail, tourism, brewing and distilling production, and office space uses, covering a total of 83,380 sq ft of the site. The former Olympia Brewery site has nearly one million square feet of potential development across the entire site, making full-scale impacts of the Craft Brewing and Distilling Center significantly greater. This analysis centered on local impact and does not capture benefits of industry and agricultural expansion, locally or for the State of Washington. Assumptions for economic and workforce impacts follow.

SCENARIO 1 - EDUCATION PROGRAM ONLY

The education component's teaching facility, based on preliminary drawings by the consultant, was analyzed for potential economic impact. The facility's estimated 29,130 sq. ft. with anticipated enrollment of 26 students per year generated $30,206,835 and 271 jobs in both direct and indirect income for all phases of construction, operation, and student/faculty expenditures.

A summary table with economic impacts for South Puget Sound Community College academic program are provided in the table, Tumwater Craft Brewing and Distilling Center – Economic Impacts for Thurston County, June 2015.

SCENARIO 2 - FULL SPECTRUM IMPACTS

The Craft Brewing and Distilling Center would include a full spectrum of components that benefit urban redevelopment of the brewery site, build a workforce driven by industry needs, create jobs, and expand local cultural/tourism options to grow the craft brewing and distilling industries and agricultural markets in the state. In addition to the economic impacts generated by the education component (Scenario 1 - Education Program Only) of the Craft Brewing and Distilling Center, a second economic impact scenario incorporated general assumptions of the components using a base of 54,250 sq ft, allocated across the following uses:

1. Business Incubators - five brewing/distilling business incubators, 1,650 sq ft each (8,250 total)
2. Museum/Gift shop – 10,000 sq ft
3. Brew Pub – 10,000 sq ft
4. Restaurant – 10,000 sq ft
5. Craft Distillery – two operating craft distilleries, 2,000 sq ft each (4,000 total).
6. Craft Brewery – 10,000 sq ft
7. Office – administrative offices for Craft Brewing & Distilling Center staff, five 200 sq ft each, plus a board room/gathering space of 1,000 sq ft (total 2,000)

The expanded scenario with the full spectrum of uses incorporated 54,250 sq ft of commercial, production, restaurant, retail, and office space, and provided an additional $70,983,763 and 391 jobs in both direct and indirect income for construction and operation. See Tumwater Craft Center Expanded – Economic Impacts for Thurston Co., June 2015 table for details.

SCENARIO 1 - EDUCATION PROGRAM ONLY

Tumwater Craft Brewing and Distilling Center - Economic Impacts for Thurston County, June 2015				
Impact Type	Employment	Labor Income ($)	Total Value Added ($)	Output ($)
Construction				
Direct Effect	162	8,562,846	8,832,076	17,000,000
Indirect Effect	28	1,269,882	1,904,733	3,384,002
Induced Effect	45	1,890,866	3,593,185	5,911,702
Total Effect	236	11,723,594	14,329,994	26,295,703
Operations				
Direct Effect	12	221,972	360,505	1,400,000
Indirect Effect	2	120,829	199,729	373,821
Induced Effect	2	66,804	127,090	208,965
Total Effect	16	409,605	687,325	1,982,786
Student/Faculty Expenditures				
Direct Effect	14	403,050	822,013	1,298,560
Indirect Effect	3	104,210	184,644	322,494
Induced Effect	2	98,252	186,857	307,292
Total Effect	19	605,511	1,193,514	1,928,346
Totals	271	12,738,710	16,210,833	30,206,835

SCENARIO 2 - FULL SPECTRUM IMPACTS

Tumwater Craft Center Expanded - Economic Impacts for Thurston County, June 2015				
Impact Type	Employment	Labor Income ($)	Total Value Added ($)	Output ($)
Construction				
Direct Effect	94	5,038,245	5,196,040	9,888,870
Indirect Effect	14	646,838	956,404	1,721,527
Induced Effect	26	1,092,432	2,075,811	3,415,346
Total Effect	134	6,777,515	8,228,255	15,025,744
Operations				
Direct Effect	166	4,530,054	8,394,139	41,707,756
Indirect Effect	56	2,995,038	4,871,152	9,627,739
Induced Effect	35	1,477,869	2,811,143	4,622,525
Total Effect	257	9,002,961	16,076,434	55,958,020
Totals	391	15,780,476	24,304,689	70,983,763

Total Combined	**662**	**28,519,187**	**40,515,521**	**101,190,599**

TOTAL IMPACT

Taken together, the total combined economic impacts of the Craft Brewing and Distilling Center would generate an estimated 662 jobs and $101,190,599 for the region. This includes the educational component and a small-scale version of the potential expanded business, restaurant, retail, tourism, brewing and distilling production, and office space uses, covering a total of 83,380 sq ft. The former Olympia Brewery site has nearly one million square feet of floor space across the entire site (including the historic Old Brewhouse site, the Knoll, Valley and Bluff), making the potential impact of the Craft Brewing and Distilling Center significantly greater.

NOTES AND ASSUMPTIONS FOR ECONOMIC IMPACTS

The table below, Assumptions for Scenario 1 – Education Program Only, includes only the academic center component and the table on the facing page, Assumptions for Scenario 2 - Full Spectrum Impacts refers to the additional facilities that would complement the Center.

Note: The inputs used for analyses were very conservative. It is likely that the actual impacts could be much higher. Visitor expenditures were not included in either of the scenarios. Brewing or distilling festivals or events would further multiply the impacts. Also, no resident expenditures were included in the expanded scenario since it was assumed that some of those would be captured through the academic center. The input-output modeling software used to calculate economic impacts was IMPLAN.

ASSUMPTIONS FOR SCENARIO 1 - EDUCATION PROGRAM ONLY

Assumptions and Inputs Utilized - Tumwater Craft Brewing and Distilling Center, June 2015

Category		Gross S.F.	$ (mil)	Direct Emp.	NAICS
Construction costs					
	Hard	29,130	13.8		236
	Soft		3.2		5413
Operations					
	Academic/Classrooms		0.5		6113
	Brewery[1]		0.9		312120
Student/Faculty Expenditures[2]					
	Student			26	115, 2211, 2212, 2213
	Faculty			6	441, 442, 443, 444
	Total			32	482, 485, 486, 487, 491, 492 (Incl. transit) 517, 521, 522, 523,524, 525 53 except real estate, 562

[1] Assumed a 3,000 bbl production rate for craft brewery

[2] Estimated expenditures from Consumer Expenditure Survey, U.S. Bureau of Labor Statistics.

ASSUMPTIONS FOR SCENARIO 2 - FULL SPECTRUM IMPACTS

Assumptions and Inputs Utilized - Tumwater Craft Center Expanded[1], June 2015					
Category	**$/Sqft.**	**Gross S.F.**	**$ (mil)**	**Direct Emp.**	**NAICS**
Construction costs[2]					
Hard					
Breweries & distilleries	$ 78.38	22,250	1.7		236
Office	$ 138.57	2,000	0.3		236
Restaurant/Brewpub	$ 222.85	20,000	4.5		236
Gift shop/museum	$ 90.69	10,000	0.9		236
Soft		54,250	2.5		5413
Operations[3]					
Breweries & distilleries				40	312120
Office				5	541
Restaurant/Brewpub	$ 346.87	20,000	6.9		722
Gift shop/museum	$ 189.49	10,000	1.9		453

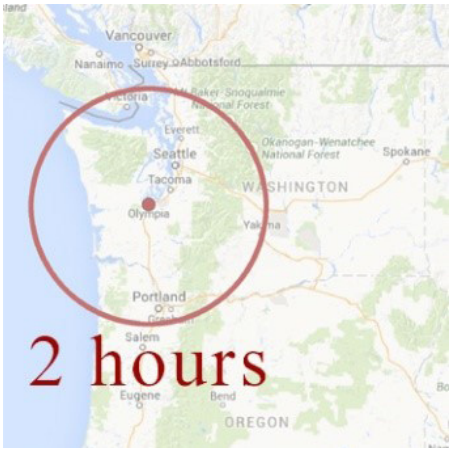
[1] Includes business incubators, museum/gift shop, brewpub, restaurant, craft distillery and brewery and office facilities.

[2] Based on estimates from RSMeans (http://www.rsmeans.com/)

[3] Operations sales estimates for restaurant and gift shop from ICSC (http://www.icsc.org/)

SITE CONSIDERATIONS

Tumwater is central to the region, being within a two-hour drive of the major cities and the Canadian border. The city is about an hour's drive from Seattle, 1:45 hours from Portland, and two hours from Yakima. This would make it possible for managers to attend weekend symposia, especially when the rates for hotel rooms are lower. For people coming from Portland, Olympia is south of and below the traffic congestion that now start at Fort Lewis and run north.



Many of the region's major cities are within a two-hour drive of Tumwater

The site has good exposure to I-5 and reasonable access to the freeway. Most people over 40 remember the Olympia Brewery as a freeway landmark, its neon sign advertising tours. The historic tower near the estuary is also a landmark, albeit one drivers have difficulty seeing as they navigate the merging freeways. The travel time from the Trosper Rd. exit to Custer Way is long by retail standards but acceptable for a visitor center, if there is enough to see and do there. The highway bridge over the Deschutes River helps define the district, separating it from the more suburban growth to the south. It is about one and a half miles from Custer Street to the capitol, which is symbolically important for those who want to lobby state government.

The history of the city and of the site also will give a center here a provenance and history that are aligned with one of the most basic of all factors driving the craft food and beverage movements--authenticity. The center need not be in the old tower to draw on this. The visibility of that tower, the story of Tumwater's settlement, and even the art deco bridges over the river will be enough to convey that this place is real and has a long history.

This short distance to the center city will help in attracting industry. Everywhere around the country talented young Millennials are gentrifying central city neighborhoods and looking for places near by to work, often starting their own companies when they cannot find work. This has resulted in a renaissance of urban manufacturing in Seattle, Portland, San Francisco, Oakland, Los Angeles, New York and Boston. In almost every case, this manufacturing is going on in older industrial areas about one to two miles from the gentrifying neighborhoods. Tumwater has a stock of old buildings, and if the shipping warehouses near E. St. on the flats near the railroad and river can be reused inexpensively, that is the logical place to create an incubator center.

One of the interesting things about this district is its untapped potential as a rest stop for travelers going between Portland and Seattle. There are several rest stops between the cities, but these are bare, generic places where the food and beverage offerings are stale coffee, powdered creamer and cheap cookies provided by fundraising groups. Tumwater, on the other hand, offers a river, falls, hatchery and estuary with hiking trails. Add history to this and the promise of learning about craft beer, spirits and cider, and this becomes an easy, convenient stop of 30 minutes or an hour. This tourism potential is too great to be overlooked, but it needs a catalyzing agent like the craft center to get people to stop and discover the rest of the area. Done right, this could become a major stopping point on I-5, equivalent to what the Olympia Brewery, the Nut Tree in Vacaville and other stopping points like these were decades ago. This modern update would combine history, industry, nature, exercise, food, and drink.

POSITIONING

In Chinook trading jargon, Tumwater means “falling water”, and the associations of power and purity in that name are still useful. To the Native Americans, this place was the falls, the fish runs and the connection to the Sound. To the white settlers, this place carried promise for industry. This place has already been “branded”, but the promise of that brand needs to be updated, as a place that draws people to work and learn together. Tumwater’s new position could be the place where industry turns water into good things.

Tumwater’s brewery site is located at the southern end and serves as a gateway to the Sound. This is a strong image to attract visitors to the City, stopping on their way north or south, and to gather industry in conference and symposia. The river creates a major green space corridor and destination here that will draw residents and visitors alike. Telling the story of the river, the tower, the settlement, and the dock will reinforce both the values of the local and authentic and the connection between Tumwater and the rest of Puget Sound.

The tower also provides a unique opportunity to reinforce the message of industry here—past and future. There is an element of the vertical, both in the tower and the falls, that contrasts nicely with the flat, horizontal landscapes of other centers in Pullman, Mt. Vernon and Corvallis. Those are agricultural places that grow commodity crops. Tumwater has been and can be about industry, about how those commodity inputs are turned into high-value outputs.

KEY COMPONENTS

There is too much land here simply to make this a learning and training center. The center needs to help spark the revitalization of the rest of the old brewery property, reviving this as a place for production, not just consumption. Plan for these four elements:

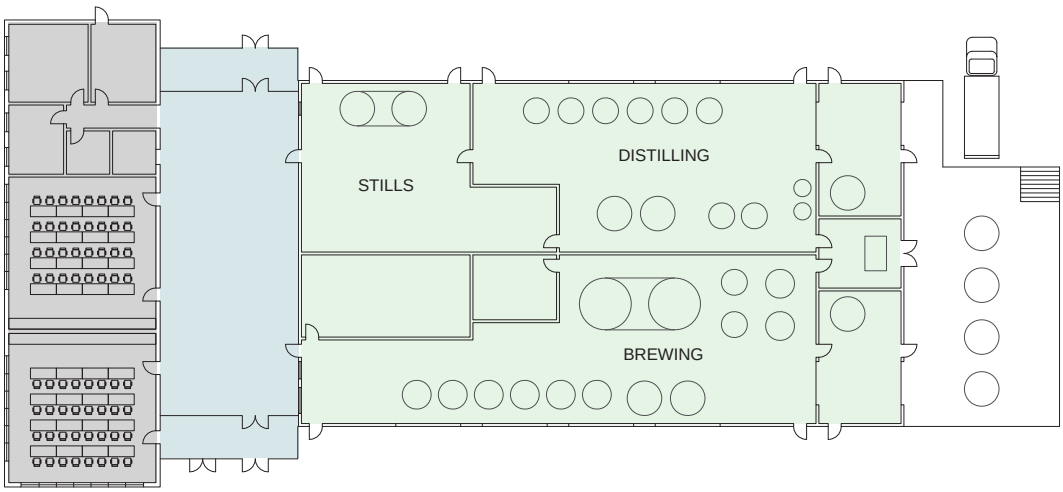
1. An education and training center. This should emphasize both production and the technical and engineering side of the business. With industry consolidation, there will be need for more highly trained workers. Other places emphasize the science of fermentation. This place should focus on the application of technique and technology, including engineering, process control and maintenance. This center should include a pilot plant for developing new beers and spirits. That means not just classrooms and labs, but hands-on pilot plants that might include a bottling line. The key words for this center will be “practical”, “applied knowledge”, “problem solving” and “useful”. Industry needs to be welcomed onto the governing board, with this board balanced between people in academia, business, government and the civic sectors.
2. A gathering place for business. This can be a place where master brewers and managers gather to discuss marketing, management and regulatory issues. This requires a boardroom, not an auditorium. This can be the place that managers and executives come to learn from one another, to work together on common issues and to plot the future course of the industry. These managers have also expressed the need for a research repository, a single source where they can easily find articles and research papers from past conferences. A library here, next to those conference rooms, would reinforce this place as a center of expertise.
3. Operating businesses. This will be more real as a training center if there are actually businesses nearby to gain experience with. An incubator center here, either integrated with or near the training and education center, should provide low-cost space for small and start-up businesses, one with access to trained labor, shared expertise and amenities. That is the essence of what is happening with urban manufacturing in bigger cities, and it can happen here. If there are shared facilities or equipment, such as publicly-financed bottling lines or test labs, so much the better. The important point is to make the new center and uses around it about the making of real things, not just “education”.
4. The tower, trails and visitor center. For most visitors, the real attraction here will not be the brewing and distilling center, but the chance to get out of their cars, move, learn and perhaps eat and drink. Many will be curious about craft brewing and distilling, but it will probably not be enough to keep them there for more than ten to 20 minutes. A window into the labs and pilot production space may keep them there slightly longer, but the center should instead be seen as a launch point that gets them to explore the river, falls and estuary beyond, and perhaps eat at a brew pub afterwards. Rather than providing all of the information all at once, the stories of this place should be strung along the trails, providing visitors the chance to discover and learn as they explore. The tower can be a destination and open-air observatory, its stairs and landings lined with more stories. For those that reach the top, the final reward could be a view out over Capitol Lake or the future estuary, facing directly to the Sound.

PROJECT DESCRIPTION

The Tumwater Craft Brewing & Distilling Center documents that follow this section include photos of the historic brewery as it developed at the base of Tumwater Falls, a building program for preliminary design of a new brewing & distilling center, and conceptual floor plans of the proposed project.

The page of historic brewery photos shows six views of the historic waterfront brewery site, and illustrates the accumulative process by which simple building forms were added and combined to create a working brewing and storage facility. The proposed new center project is designed in pieces as a reference to the accumulative manner in which the historic Olympic Brewery site developed over time. This approach is both practical and an aesthetic means for developing and understanding the new Tumwater Craft Brewing & Distilling Center. The building is designed in three parts which include a building for brewery and distillery training, an academic building for learning and administration, and an entry building to connect the training and learning spaces and to educate the public about the field of craft brewing and distilling. This could also include a “Tap Room,” which is a literal reference to the popular Olympia Brewery Tap Room, and will be a location to sample the center’s product while observing the brewing and distilling training facilities below.

The building program includes a list of the spaces included in the proposed scheme, the area in square feet associated with each space, and notes about each space. The total gross square feet is 29,130, and this size is consistent with brewing and distilling facilities that were reviewed while researching craft breweries and distilleries. The spaces are separated by level and by function, with the brewing and distilling spaces located on ground in an open and flexible space, the classrooms and administrative spaces located in an academic building, and the public spaces located in the open connection between the two buildings. The three part building includes training areas, learning areas and public spaces for sharing information about craft brewing and distilling. The diagram below illustrates the organization.



The largest of the three spaces is the training area and it consists of a full craft brewing line and a full craft distilling line. The intent is to be able to represent all of the phases of production - receiving the raw ingredients, preparing the ingredients, heating and fermenting the ingredients, distilling, aging, and bottling the product. The layout of the adjacent brewing and distilling lines is meant to illustrate the similarities and distinctions between the two processes. The building would be industrial in appearance and contain large, open spaces that would be flexible and easily allow for future changes and upgrades.

The second of the three parts includes the learning areas. This includes the wet classrooms for teaching and learning, administrative areas, a reception kitchen and back of house items such as elevators and restrooms. The learning area is meant to support traditional classroom activities such as instruction on business operations and management, as well as brewing science, food science, home brewing, and small conferences. This portion of the building is also meant to be very flexible, and to open easily into the shared entry spaces for group functions.

The connection is designed to be an open structure that holds the academic building and the industrial building together. The design is meant to evoke the industrial spaces outside of a brewery where people and equipment would operate together, and the space is meant to capture this manufacturing energy. The space is designed to connect the two buildings and provide opportunities for receptions and conferences, provide visitor information, and provide easy access to the training areas, classrooms, Tap Room, reception deck, reception kitchen, and the outdoors. The three part building is meant to work as a whole, with the exterior appearance representing and supporting the function and identity of each.

CRAFT BREWING & DISTILLING CENTER SITE

The Craft Brewing & Distilling Center in its preliminary form is meant to be a true center of activity and thought for a local, regional and national community. The new center will act as an anchor for development devoted to the history and future of manufacturing beer at this site.

In addition to the building program elements included in the current craft brewing & distilling center design, the list below includes potential additional buildings, programs or activities that could be incorporated into the project or into new adjacent buildings. The Craft Brewing and Distilling Center would be the focus of many activities directly and indirectly associated with the brewing and distilling industry, and it is expected that the facilities would enjoy the benefits of a neighborhood of focused manufacturing energy.

Potential Brewing & Distilling Related Uses might include:

- Commercial Brewery with Brewpub and Tasting Rooms
- Commercial Distillery with Tasting Rooms
- Commercial Restaurant
- Commercial Teaching & Learning Kitchen
- Brewing, Distilling, Wine & Food Gift Shop featuring Washington State beverages & products as well as glassware, themed souvenirs, & brewing history memorabilia
- Demonstration Garden featuring brewing and distilling ingredients such as barley, wheat, corn apples, hops, oak trees, bees and aromatic plants
- Brewing/Distilling Industry Testing Laboratory
- Fermenting Materials Laboratory
- Office Space for Brewing & Distilling Industry
- Office Space for Brewing & Distilling Associations
- Consumer Education Classrooms & Displays
- Home Brewing Classroom
- Cider Making Classroom
- Brewing Industry Museum
- Distilling Industry Museum
- Outdoor Entertainment Area for Musical or Theater Performances

Potential Public Uses might include:

- State and Regional Conference and Gathering Location for Brewing & Distilling Business, as well as Agriculture
- Tumwater Brewing Museum
- Tumwater History Museum
- Squaxin Island Tribe Museum
- Olympia Tumwater Foundation Museum
- Washington State Produce Stand or Farmer's Market
- Tumwater Festival Site
- Student Study/Flex Space
- Bicycle Path and Pedestrian Trailhead for Tumwater Falls and Historic Brewery Site
- I-5 Visitors Way Station

Developing the Craft Brewing and Distilling Center site with private businesses and public activities will create a site synergy that will support more local development, encourage development on adjacent properties, and will improve and encourage public access. Because of its focus on business and education, the Tumwater Craft Brewing & Distilling Center will support entrepreneurship, and the expectation is that the center will benefit local development in manufacturing, retail, cultural resources, and tourism.

Craft Brewing & Distilling Center
Tumwater, Washington

CARDINAL ARCHITECTURE PC

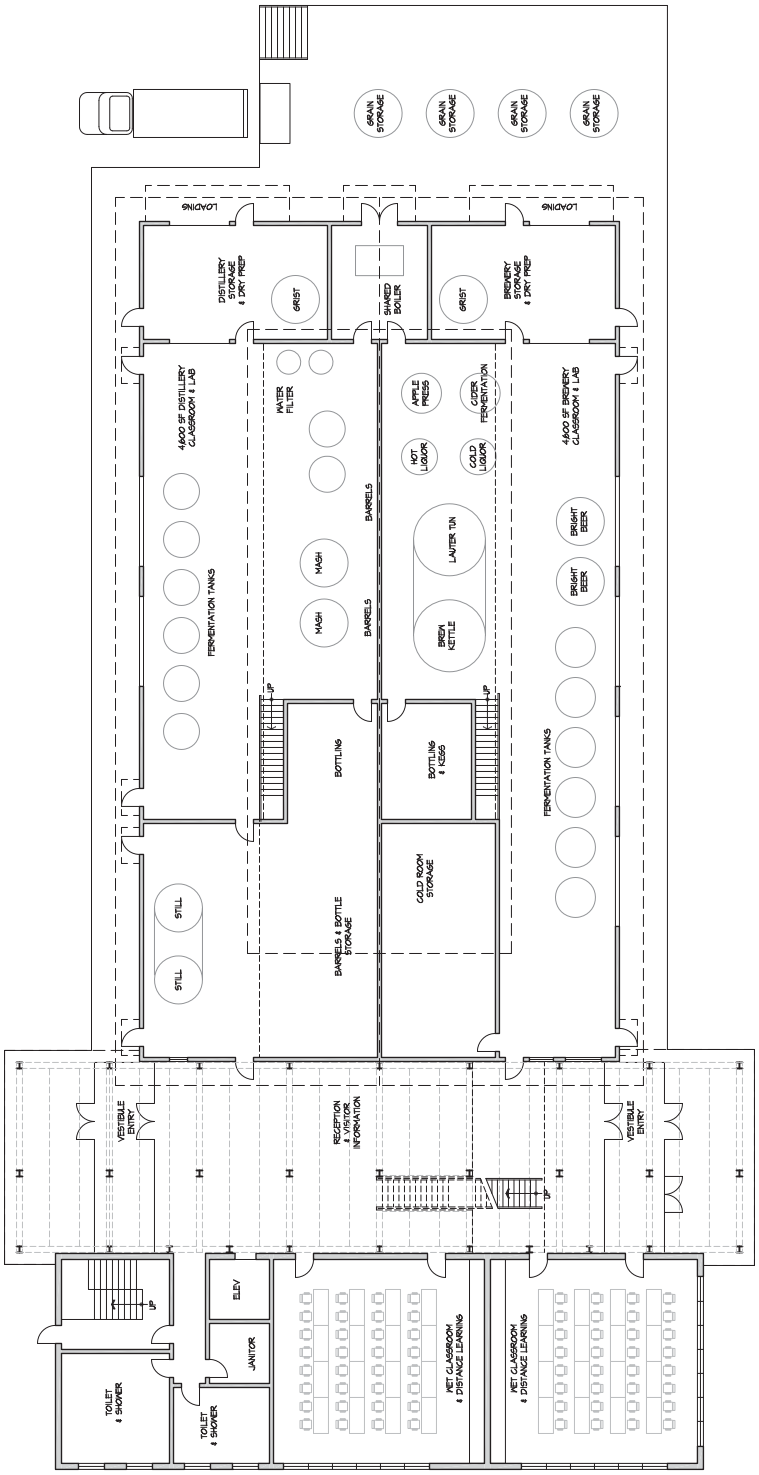
Updated Building Program
18 February 2015

Level	Program	Size	Occ. Class	Notes
Roof	Roofing			Steel Roofing & Membrane
	Green Roof?			Green Roof Trays on Pedestals
	Brewery & Distillery Mechanical			Heating Ventilation Cooling Exhaust
	Classroom Building Mechanical			Heating Ventilation Cooling Exhaust
	Stair 2 Roof Access			Ladder & Bilco Roof Hatch
Level 2 Learning Areas	Administration & Reception	800	B	Reception & Office Staff
	Administration Conference Room	250	B	
	Meeting Room	150	B	
	Administrator Office	150	B	
	(8) Faculty Offices	790	B	Workstations
	Faculty Library & Meeting Room	240	B	
	Staff & Student Break & Reception	1,625	A-3	
	Tap Room	1,500	A-2	Mens & Women's Toilets, Bar, Seating, Views to Brewery & Distillery Below
	Reception Deck	710	A-3	Pavers on Pedestals, Retractable Awnings, Facing Schmidt House, Historic Brewery, & Capitol Building
	Reception Kitchen	230	A-3	
	Mens & Womens Toilets	500		
	Elevator	100		
	Stair 1	130		
	Stair 2 w/ Area of Refuge	180		
	Level 2 Net	**7,355**		
	Level 2 Gross (net +20%)	**8,826**		
Level 1 Training Areas	Brewery Classroom & Lab	3,470	F-2	
	Brewery Bottling	290	F-2	300 SF Mezzanine Above for Controls & Technical Support
	Brewery Cold Storage	740	S-2	
	Brewery Storage & Dry Prep	580	H-2 (Dust)	
	Distillery Classroom & Lab	2,700	F-2	
	Distillery Stills, Bottling & Storage	1,820	H-2 (Alcohol)	300 SF Mezzanine Above for Controls & Technical Support
	Distillery Storage & Dry Prep	580	H-2 (Dust)	
	Shared Boiler Room	300	U	Including Water Distilling Equipment
	Subtotal	10,480		
Level 1 Learning Areas	(2) Entry Vestibules	640	A-3	
	Reception & Visitor Information	2,400	A-3	Reception Space
	Wet Classroom & Distance Learning for (32)	1,200	B	
	Wet Classroom & Distance Learning for (32)	1,200	B	
	Mens & Womens Toilets & Showers	530		
	Janitor	100		
	Elevator	100		
	Stair 1			Open Stair in Reception Space
	Stair 2	270		Direct Exit at grade
	Subtotal	6,440		
	Level 1 Net	**16,920**		
	Level 1 Gross (net +20%)	**20,304**		

Levels 1 & 2 NET Total	**24,275**
Levels 1 & 2 GROSS Total	**29,130**

Exterior & Site	Exterior Finishes		Red Brick, Painted Steel, Glass, Metal Siding & Roofing, Historic Industrial Style
	Storefront Windows		Views into and out of Center, Visible Classrooms & Learning Activity
	Brewery & Distilling Grain Bin Storage		Silos
	Brewing & Distilling Waste Storage		Farmer Feed Collection, Screened with Fencing
	Garbage & Recycling		Screened with Fencing
	Outdoor Prep		
	Street Trees		
	Entry Landscaping		Connection to Schmidt House, Custer Way, Tower Building
	Site Parking		To Be Calculated with Land Use & Practical Need

Potential Additional Program Spaces			
	Demonstration Garden		Barley, Wheat, Corn, Apples, Hops, Oak Trees, Bees, Aromatic Plants
	Brewing Laboratory		
	Distilling Laboratory		
	Fermenting Materials Laboratory		
	Office Space for Related Industry		
	Office Space for Related Associations		
	Consumer Education Classroom or Displays		
	Home Brewing Classroom		
	Tumwater Brewing Museum		
	Tumwater History Museum		

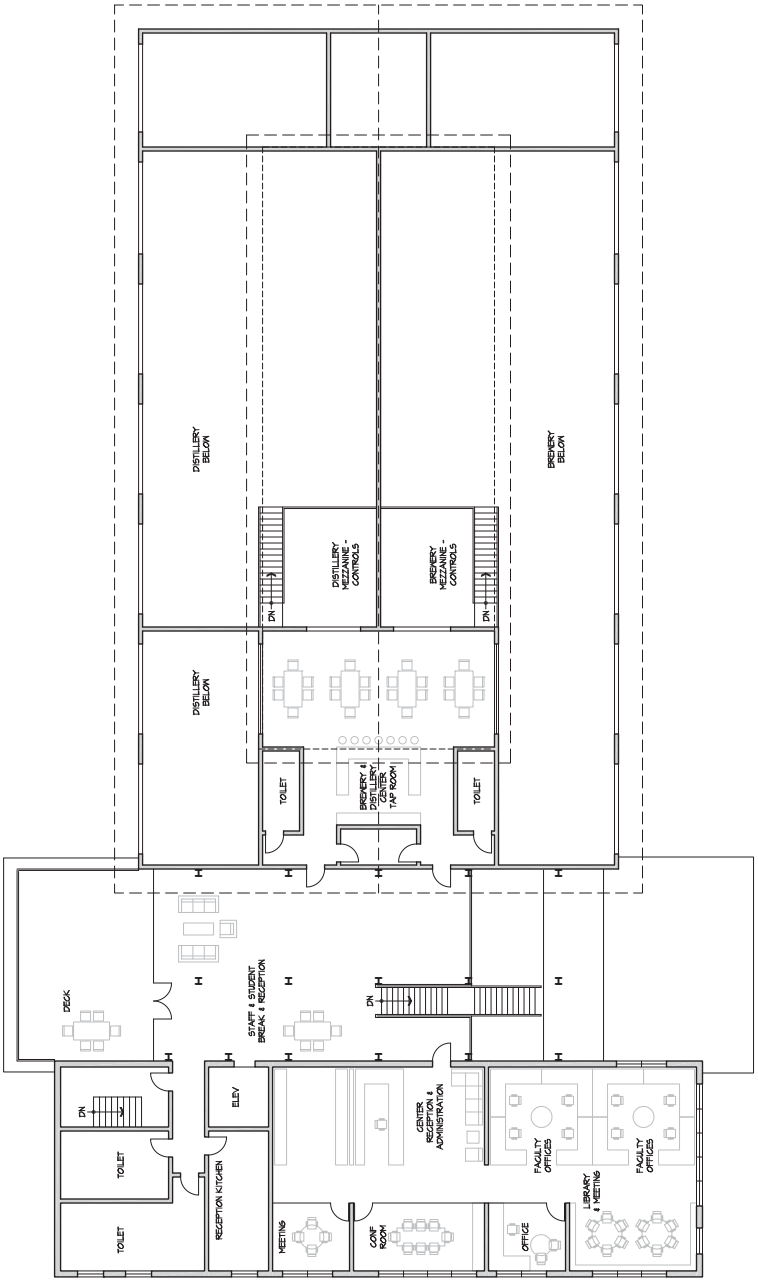


FIRST FLOOR PLAN

N

0' 8' 16' 32'

CARDINAL ARCHITECTURE PC

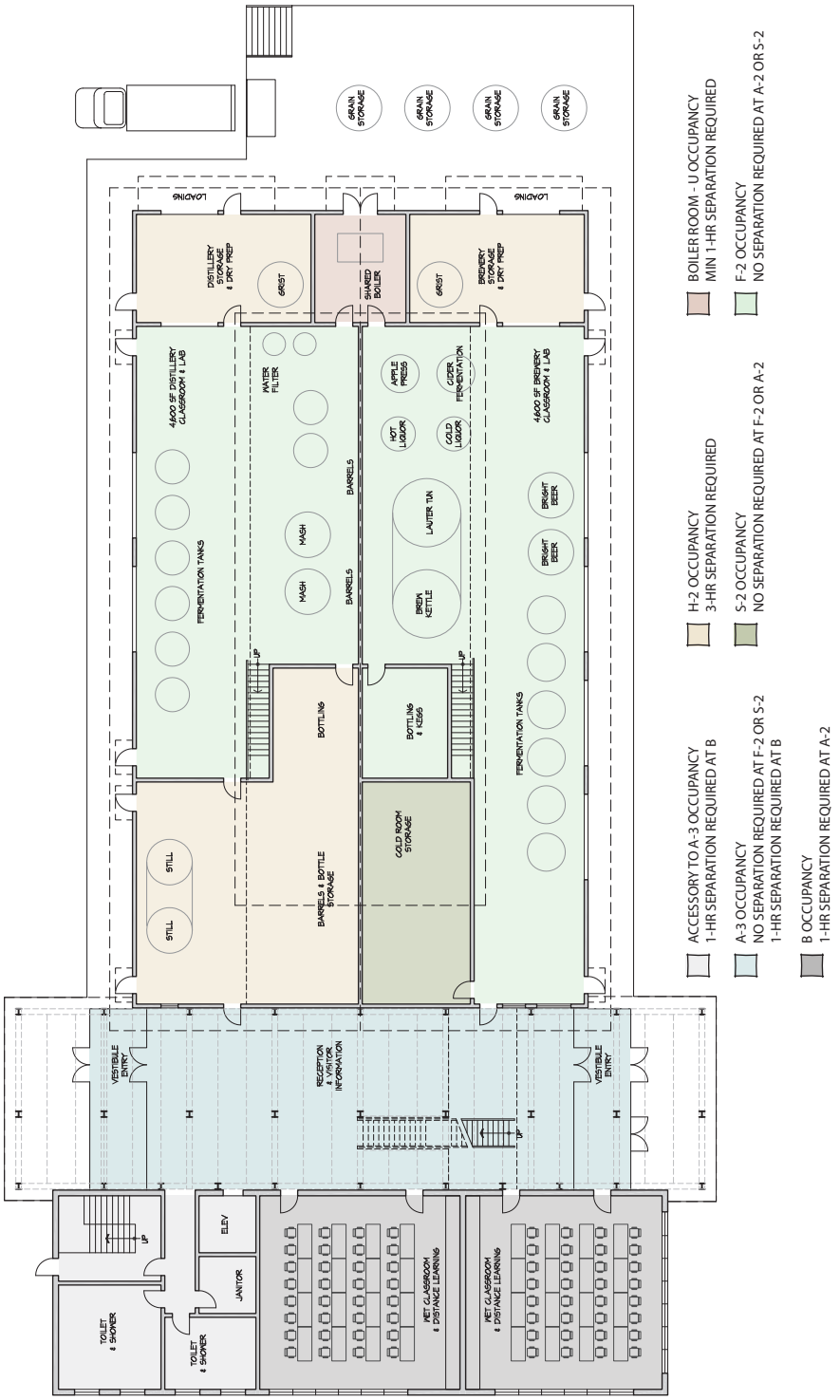


SECOND FLOOR PLAN (2)

N

0' 8' 16' 32'

CARDINAL ARCHITECTURE PC



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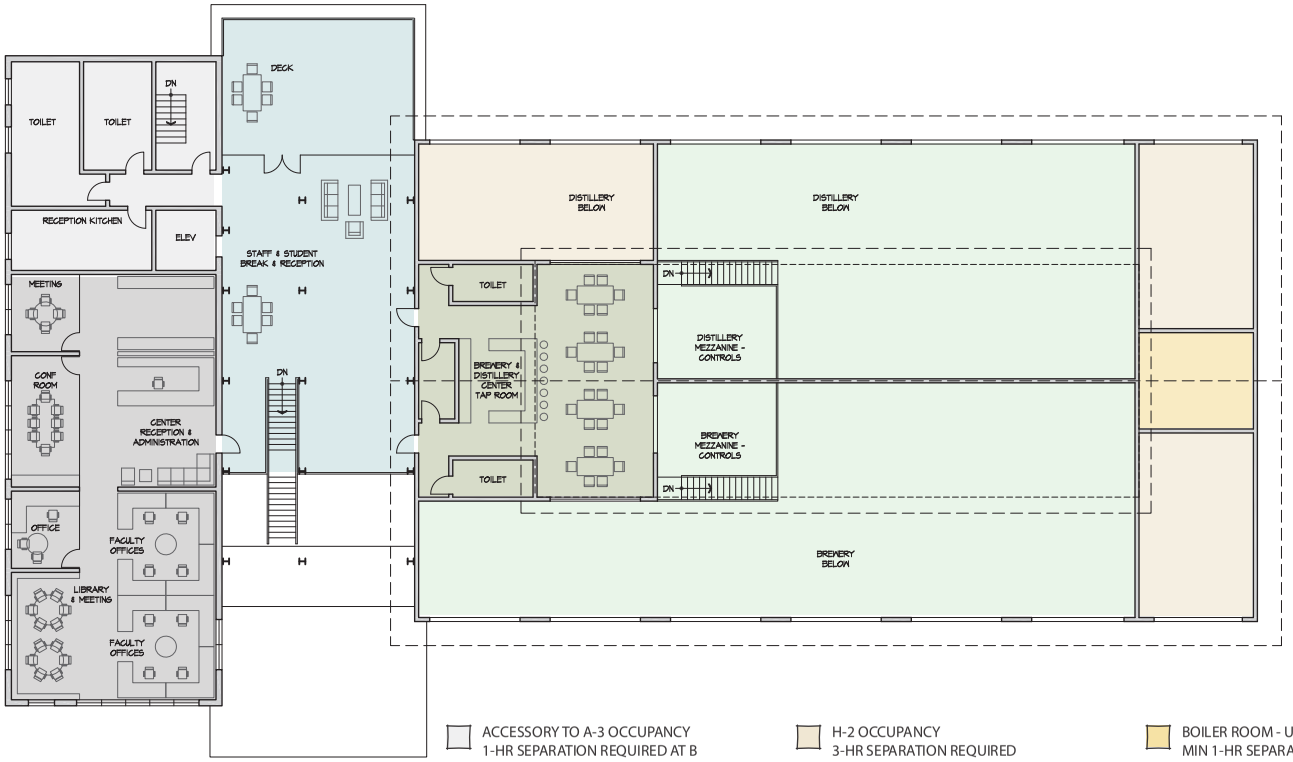

ACCESSORY TO A-3 OCCUPANCY
1-HR SEPARATION REQUIRED AT B

A-3 OCCUPANCY
NO SEPARATION REQUIRED AT F-2 OR S-2
1-HR SEPARATION REQUIRED AT B

B OCCUPANCY
1-HR SEPARATION REQUIRED AT A-2

H-2 OCCUPANCY
3-HR SEPARATION REQUIRED

A-2 OCCUPANCY W/ H-2 BELOW
NO SEPARATION REQUIRED AT A-2, F-2 OR S-2
3-HR SEPARATION REQUIRED AT H-2

BOILER ROOM - U OCCUPANCY
MIN 1-HR SEPARATION REQUIRED

F-2 OCCUPANCY
NO SEPARATION REQUIRED AT A-2 OR S-2

SECOND FLOOR OCCUPANCY PLAN 4

N

0' 8' 16' 32'

CARDINAL
ARCHITECTURE PC

CONSTRUCTION COSTS

The construction costs associated with the proposed new center project include building construction costs and site development, as well as brewing, distilling, and cidery equipment. The scope is for a 29,130 SF gross building, and the total construction cost is estimated to be $13,206,305, or approximately $453 per square foot.

The training building would be a concrete foundation and slab floor with a steel-framed building above. The building would include daylighting and full commercial insulation. The education building would be a concrete foundation and slab floor with steel and steel-stud framed walls, with a masonry veneer exterior. The public connection would be a concrete foundation and floor with exposed steel framing and storefront glazing. The construction cost numbers include budgets for utilities, parking lots, site lighting, and landscaping.

These construction cost estimates are consistent with construction budgets for higher education projects and training facilities.

PROJECT PRO FORMA

The projected cost for this center is approximately $17.5 million, expressed in current and future dollars. This includes about $600,000 for land, $13.8 million for construction and equipment, and $3.2 million for design, project management and other soft costs. The projected development period is approximately three years for planning, design and construction.

The table below shows a hypothetical model of the sources and uses of cash for development of the project, including a first year of operation in 2018. This model assumes that the City of Tumwater contributes $2.7 million, that the State or other sources provide grants of $8.0 million and that the balance is funded by the Port or another entity, with these bonds serviced by the issuers. The rents would come from the academic provider(s) and would be set to cover operating expenses. The actual financing mix will be subject to negotiation and interest.

Year:	2015	2016	2017	2018	Total
Activitity	Planning	Design	Construction	Operation	
Sources:					
Local Funds	504,880	1,216,660	947,585		2,669,125
Other Grants	500,000	500,000	7,000,000		8,000,000
Bonds			6,885,000		6,885,000
Operating subsidies				351,268	351,268
Rents				170,000	170,000
Total	1,004,880	1,716,660	14,832,585	521,268	18,075,393
Uses:					
Land[1]	582,600				582,600
Planning and Design[2]		1,239,300	137,700		1,377,000
Construction[3]			13,770,000		13,770,000
Project management[4]	367,200	367,200	367,200		1,101,600
Studies and permits[5]	55,080	110,160	385,560		550,800
Bond issuance costs[6]			172,125		172,125
Operating Expenses[7]				170,000	170,000
Debt service[8]				351,268	351,268
Total	1,004,880	1,716,660	14,832,585	521,268	18,075,393

Notes:

1. 29,310 sf of bldg, 25% floor area ratio, purchase price of $5/land ft.
2. 12% of hard costs, divided 75/25 between design and construction.
3. Per 2015 estimates, inflated 4% per year for two years.
4. 8% of hard costs, divided between three years.
5. 4% of hard costs, divided 10/20/70.
6. 2.5% of bond principal.
7. 29,130 sf @$5 per sf/year in 2015, inflated 4% annually.
8. Bond principal, 30-year term, 3% annual interest.

PARTNERING

The first step in this process is recruiting industry and academic partners. A contract brewer may be interested in locating here, particularly if the cost of occupancy or use of equipment is brought down through public financing. There is precedent for this in the Port of Skagit's recent agreement for the purchase and management of grain drying equipment. The academic partner here needs to agree to shared management of the center, so that this place does not become too driven by teaching or research and remains connected to industry. That is the weakness of many of the academically-controlled food and beverage centers in the U.S. The third need is financing. A public development authority will not bring any special powers in this that are not already available through the city or a port authority.

POLITICAL SUPPORT

Getting grants and partners will require broad public support. The City can create this with more frequent use of the trails and open space. More events, better way-finding and interesting interpretive signs will build this. There may also be more immediate grant money for a pedestrian bridge to the tower.

ORGANIZATION

A public development authority or "PDA" is necessary, to focus the board and staff on the goals of getting a center built, and to free them from the political considerations and management constraints of the other participating bodies. The board of this PDA should include not only community but also industry and educational representatives, reflecting the various interests of business, industry and the open spaces.

NEXT STEPS

1. Find a brewing partner. This is most likely to be a contract brewer interested in expanding production beyond the size limitations of the local market.
2. Find an educational partner. This does not have to come from the local market. This partner should have experience mixing distance education with in-person instruction, as well as working with industry to design technical training programs.
3. Build a working relationship with industry associations. This can be a material advantage over other centers. That means working with an association like the MBAA to create a new approach that meets immediate industry needs for training. There are big opportunities in being the center that is close to business.
4. Start working away on the trails and open spaces. The river and the falls are jewels that relatively few travelers on I-5 know about. Planning for their future does not require lining up operating partners or raising funding. Getting people to come to them will activate this place again and show the state and other cities in the region, particularly those that influence the opening of Capitol Lake, that the City of Tumwater is intent on revitalizing this place and integrating it back into the region. There is work to be done on that planning today.
5. Think in terms of the district as a whole. This place needs a master plan, not only for where the center will go and how this relates to the open spaces, but for location of new industry and where the public dollar will best be spent. The City needs to take the lead in that master planning, for no one private owner will share its goals and priorities, nor will those owners necessarily act as fast as the public wants them to. This master plan probably needs to include carrots and sticks for encouraging private development, but its most important element will be an overall vision that draws the right parties to the table, showing the public intent to make this a vital place again.
6. Create an organizational structure that moves the “Center” forward. Form an advisory group that can bring together the different constituencies.
7. Engage WSU Extension. A traditional Extension function is to develop the supply chain, specifically, convene farmers to expand the knowledge of brewing and distilling markets, convene brewers and distillers to expand understanding of agricultural opportunities using specialty grains, barleys, and hops. By building these relationships, the growth of these industries may continue and it could be possible to develop industry-based financing for the Center. A dedicated agricultural faculty member could focus on this for a 3-4 year time frame. This may require additional funding focused specifically on this these tasks.

There is great opportunity here, one to create a place that gives Tumwater a new identity on I-5, and that sparks industrial development on the rest of the old Olympia Brewery site. This district is tremendously central to the Olympia metro area, and with its potential for industrial development, this can be a place that helps diversify that economy with industry that makes tangible things. To succeed, however, the seed institution here—the craft brewing and distilling center—will need to be different from all those other centers. The best way to do this is to make this center a friend to industry, a place people go to learn, a place employers go to hire, a place managers go to solve their problems, a place start ups go to find talent and expertise. Most academic institutions focus on research, and their business incubation programs have not been notably successful. The opportunity to do things differently here, both to create a “badges” program and to put learning and working together, should not be ignored.

Tumwater Craft Brewing & Distilling Center

Tumwater, Washington

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Contents

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Overall Summary

		SF	$/SF	TOTAL
B1	Craft Brewing Center-New Construction	29,130	453.36	13,206,305
TOTAL CONSTRUCTION		29,130	453.36	13,206,305
RECOMMENDED BUDGET				**13,206,305**

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Scope of Work

Project Scope Description

The project comprises the site development and new construction of a Craft Brewing Center in Tumwater, Washington. The costs provided herein are for budgeting purposes. As the project develops, consideration must be considered for phasing, bid timing, market conditions and contractor avaiablity.

Project Design

The project costs are based on conceptual drawings and narratives provided by the design team.

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction Areas & Control Quantities

	SF		SF
Areas			
Enclosed Areas		Program Areas (NET)	
Level one	20,304	Learning areas	13,795
Level two	8,826	Training areas	10,480
Subtotal of Enclosed Areas	29,130		
TOTAL GROSS FLOOR AREA	**29,130**	**Efficiency: 83%**	**24,275**

Control Quantities				Ratio to GFA
Number of Stories (x1,000)		2	EA	0.069
Gross Floor Area		29,130	SF	1.000
Enclosed Area		29,130	SF	1.000
Canopy area		1,194	SF	0.041
Footprint Area		17,616	SF	0.605
Volume		581,328	CF	19.956
Basement Volume		0	CF	-
Exterior Wall Area		15,706	SF	0.539
Retaining Wall Area		3,383	SF	0.116
Finished Wall Area		19,089	SF	0.655
Windows or Glazing	18%	3,382	SF	0.116
Roof Area - Flat		6,070	SF	0.208
Roof Area - Sloping		13,332	SF	0.458
Roof Area - Total		19,402	SF	0.666
Interior Partitions		850	LF	0.029
Elevators (x10,000)		1	EA	0.343
Plumbing Fixtures (x1,000)		39	EA	1.339
Electrical Load		874	KW	0.030

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction Summary

			%	$/SF	TOTAL
			Gross Area:	29,130 SF	
A10	Foundations		4%	17.05	496,656
A20	Basement Construction		0%	0.00	0
A	Substructure		4%	17.05	496,656
B10	Superstructure		3%	15.43	449,449
B20	Exterior Enclosure		6%	26.36	767,940
B30	Roofing		5%	22.87	666,112
B	Shell		14%	64.66	1,883,500
C10	Interior Construction		4%	19.76	575,612
C20	Stairways		0%	1.63	47,500
C30	Interior Finishes		4%	18.50	538,828
C	Interiors		9%	39.89	1,161,940
D10	Conveying Systems		1%	4.63	135,000
D20	Plumbing Systems		5%	20.58	599,509
D30	Heating, Ventilation & Air Conditioning		7%	32.40	943,846
D40	Fire Protection		1%	5.66	164,831
D50	Electrical Lighting, Power & Communications		7%	31.86	927,964
D	Services		21%	95.13	2,771,150
E10	Equipment		9%	40.17	1,170,195
E20	Furnishings		2%	9.69	282,342
E	Equipment & Furnishings		11%	49.86	1,452,537
F10	Special Construction		0%	0.00	0
F20	Selective Demolition		0%	0.73	21,139
F	Special Construction & Demolition		0%	0.73	21,139
G10	Site Preparation		6%	2.43	70,816
G20	Site Improvements		17%	6.93	201,990
G30	Site Mechanical Utilities		33%	13.32	388,000
G40	Site Electrical Utilities		17%	6.98	203,212
G	Building Sitework		74%	29,660.76	864,018
BUILDING ELEMENTAL COST BEFORE CONTINGENCIES			66%	296.98	8,650,940
Z10	Contingency	20.00%	13%	59.40	1,730,188
BUILDING ELEMENTAL COST INCLUDING CONTINGENCIES			79%	356.37	10,381,128
Z21	Field Requirements	6.00%	5%	21.38	622,868
Z22	Office Overhead & Profit	4.50%	4%	17.00	495,180
Z23	Bonds and insurance	1.80%	2%	7.11	206,985
Z24	Mobilization	9.00%	8%	36.17	1,053,554
BUILDING CONSTRUCTION COST BEFORE ESCALATION			97%	438.03	12,759,715
Z30	Escalation to Start Date (Jun 2015)	3.50%	3%	15.33	446,590
RECOMMENDED BUDGET			100%	453.36	13,206,305

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction

	Quantity	Unit	Rate	Total
A10 Foundations				
A1010 Standard Foundations	**29,130**	**SF**	**3.61**	**105,233**
Continuous footings	215	CY	450.00	96,700
Column footings	19	CY	450.00	8,533
A1030 Slab On Grade	**29,130**	**SF**	**13.44**	**391,423**
8" SOG over base materials, insulation and vapor barrier	17,616	SF	14.00	246,624
Extra for sloping and drain contours	17,616	SF	2.00	35,232
Loading dock elevated slab (720 SF)	80	CY	475.00	37,789
3' h. grain storage pad w/stairs (1360 SF)	151	CY	475.00	71,778
				496,656
A20 Basement Construction				
A2010 Basement Excavation	**29,130**	**SF**		
Not required				
				0
B10 Superstructure				
B1010 Floor Construction	**29,130**	**SF**	**11.43**	**332,929**
Brewery mezzanine and stairs -steel framed system with rails (incl. 3 hr horz separation)	2,373	SF	120.00	284,760
Steel framing - staff areas 2nd lvl	5,505	SF	4.00	22,020
Metal pan and concrete topping slab	5,505	SF	4.75	26,149
B1020 Roof Construction	**29,130**	**SF**	**4.00**	**116,520**
Steel framing including girders	27,042	SF	4.00	108,168
Clerestory framing	2,088	SF	4.00	8,352
				449,449
B20 Exterior Enclosure				
B2010 Exterior Walls	**29,130**	**SF**	**18.41**	**536,140**
8" CIP walls to 7'	2,303	SF	16.00	36,848
8" CIP walls to 4'	1,080	SF	16.00	17,280

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction

	Quantity	Unit	Rate	Total
Exterior metal stud framing	8,119	SF	10.00	81,190
Insulated metal panel cladding system	8,119	SF	26.00	211,094
Reinforced masonry wall system with red brick veneer	5,509	SF	32.00	176,288
Window and door stone eyebrows	112	LF	120.00	13,440
B2020 Exterior Windows	**29,130**	**SF**	**6.76**	**196,900**
Insulated divided light windows	2,392	SF	55.00	131,560
Storefront system and entry doors with opener	990	SF	66.00	65,340
B2030 Exterior Doors	**29,130**	**SF**	**1.20**	**34,900**
Roll up doors- automatic	2	EA	12,500.00	25,000
Metal doors and frames - single	6	EA	1,300.00	7,800
Metal doors and frames - pair	1	EA	2,100.00	2,100
				767,940

B30 Roofing

B3010 Roof Coverings	**29,130**	**SF**	**22.64**	**659,612**
Insulated steel roofing system at sloped roof	11,244	SF	28.00	314,832
Membrane roof system	6,070	SF	20.00	121,400
Soffits	2,668	SF	16.00	42,688
Sheet metal and roofing ancillaries	29,130	SF	1.75	50,978
Caulking and sealants	29,130	SF	1.00	29,130
Canopies and steel support framing	783	SF	48.00	37,584
Entry canopy and columns (2 sets)	900	SF	70.00	63,000
B3020 Roof Openings	**29,130**	**SF**	**0.22**	**6,500**
Roof access	1	LS	6,500.00	6,500
				666,112

C10 Interior Construction

C1010 Partitions	**29,130**	**SF**	**14.82**	**431,613**
Interior of exterior walls				
Brewery	11,116	SF	10.00	111,160
Classroom and admin	8,910	SF	9.75	86,873
Metal stud and gyp framing	8,688	SF	9.00	78,192
3 hour walls- blast resistant	4,788	SF	24.00	114,912
Shaft walls	1,386	SF	14.00	19,404

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction

	Quantity	Unit	Rate	Total
Cold room storage walls	1,092	SF	16.00	17,472
Glazed walls				
Classroom and admin	72	SF	50.00	3,600
C1020 Interior Doors	**29,130**	**SF**	**2.21**	**64,300**
Metal doors and frames	18	EA	1,300.00	23,400
Wood and full lite doors and frames	10	EA	1,450.00	14,500
Glazed interior vestibule doors and glazed walls	480	SF	55.00	26,400
C1030 Fittings	**29,130**	**SF**	**2.74**	**79,700**
Equipment blocking and anchoring	9,479	SF	2.50	23,698
Restroom shower fit-outs (1st level)	705	SF	38.00	26,790
Restroom fit-outs (2nd level)	784	SF	28.00	21,952
Kitchen fit-out	242	SF	30.00	7,260
				575,612
C20 Stairways				
C2010 Stair Construction	**29,130**	**SF**	**1.63**	**47,500**
Interior stair and rails at entry	1	LS	28,000.00	28,000
Secondary stair and rails	1	LS	19,500.00	19,500
				47,500
C30 Interior Finishes				
C3010 Wall Finishes	**29,130**	**SF**	**4.02**	**117,048**
Washable high gloss paint -Brewery	21,245	SF	3.00	63,735
Painted walls	21,998	SF	1.10	24,197
Tile walls in restrooms	2,008	SF	14.50	29,116
C3020 Floor Finishes	**29,130**	**SF**	**5.69**	**165,628**
Water sealed brewery & classroom floor	12,073	SF	3.50	42,256
Carpet tile	14,784	SF	6.50	96,096
Kitchen tile	784	SF	12.00	9,408
Restroom tile	1,489	SF	12.00	17,868
C3030 Ceiling Finishes	**29,130**	**SF**	**8.79**	**256,152**
Vinyl insulation mechanically attached at Brewery	12,073	SF	12.00	144,876
ACT tile ceilings and Gyp bulkheads	15,568	SF	6.00	93,408
Gyp ceilings	1,489	SF	12.00	17,868
				538,828

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction

	Quantity	Unit	Rate	Total
D10 Conveying Systems				
D1010 Elevators & Lifts	**29,130**	**SF**	**4.63**	**135,000**
2500 lb machine roomless elevator	1	LS	135,000.00	135,000
				135,000
D20 Plumbing Systems				
D2010 Plumbing Fixtures	**29,130**	**SF**	**7.33**	**213,570**
Sanitary fixtures and connection piping				
Water closet	10	EA	990.00	9,900
Lavatory basin	12	EA	1,080.00	12,960
Drinking fountain	1	EA	2,610.00	2,610
Kitchen sink	1	EA	1,305.00	1,305
Shower	2	EA	1,350.00	2,700
Janitor sink	1	EA	945.00	945
Brewery sinks	1	EA	900.00	900
Brewery hose bibs	10	EA	585.00	5,850
Emergency eye wash station	1	EA	1,620.00	1,620
Water heating - domestic hot water piping and pumps	29,130	SF	6.00	174,780
D2020 Domestic Water Distribution	**29,130**	**SF**	**6.02**	**175,500**
Rough-in plumbing, water, waste and venting	39	EA	4,500.00	175,500
D2030 Sanitary Waste	**29,130**	**SF**	**1.73**	**50,445**
Floor drains	10	EA	675.00	6,750
Waste water treatment	29,130	SF	1.50	43,695
D2040 Rain Water Drainage	**29,130**	**SF**	**0.41**	**11,840**
Gutter and downspouts	740	LF	16.00	11,840
D2090 Other Plumbing Systems	**29,130**	**SF**	**5.09**	**148,154**
Process piping	12,073	SF	9.00	108,657
Gas distribution	29,130	SF	0.90	26,217
Compressed air	12,073	SF	1.10	13,280
				599,509

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction

	Quantity	Unit	Rate	Total
D30 Heating, Ventilation & Air Conditioning				
D3010 Energy Supply	**29,130**	**SF**	**32.40**	**943,846**
Heating, cooling and ventilation- Brewery	12,073	SF	36.50	440,665
Heating, cooling and ventilation- Classroom and Admin	17,057	SF	29.50	503,182
				943,846
D40 Fire Protection				
D4010 Sprinklers	**29,130**	SF	5.12	149,146
Fully sprinkled building - complete system	29,130	SF	5.12	149,146
D4030 Fire Protection Specialties	**29,130**	SF	0.54	15,685
Fire extinguishers and cabinets	45	EA	350.00	15,685
				164,831
D50 Electrical Lighting, Power & Communications				
D5010 Electrical Service & Distribution	**29,130**	**SF**	**13.50**	**393,285**
Normal power and panel distribution	29,130	SF	3.15	91,760
Emergency power	29,130	SF	2.70	78,651
Equipment connections and switching	35	EA	990.00	34,650
Receptacles including conduit and wire	448	EA	420.00	188,225
D5020 Lighting & Branch Wiring	**29,130**	**SF**	**9.27**	**270,094**
Brewery lighting	12,073	SF	10.80	130,388
Classroom and admin lighting	17,057	SF	7.20	122,810
Emergency lighting	29,130	SF	0.30	8,739
Lighting control	29,130	SF	0.28	8,156
D5030 Communications & Security	**29,130**	**SF**	**5.65**	**164,585**
Data cabling	146	EA	360.00	52,434
Cameras and monitors -education	29	EA	2,700.00	78,651
Alarm and security	29,130	SF	1.15	33,500
D5090 Other Electrical Systems	**29,130**	**SF**	**3.43**	**100,000**
Brewery Management and Control system	1	LS	100,000.00	100,000
				927,964

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction

	Quantity	Unit	Rate	Total
E10 Equipment				
E1010 Commercial Equipment	**29,130**	**SF**	**37.76**	**1,100,000**
Brewery equipment	1	LS	1,100,000.00	1,100,000
Grain storage	4	EA		*inc*
Grist	2	EA		*inc*
Boiler	1	EA		*inc*
Fermentation tanks	14	EA		*inc*
Mash	2	EA		*inc*
Still	2	EA		*inc*
Apple press	1	EA		*inc*
Hot Liquor tank	1	EA		*inc*
Cold Liquor tank	1	EA		*inc*
Post fermentation	1	EA		*inc*
Brew Kettle	1	EA		*inc*
Lauter Tun	1	EA		*inc*
Bright Beer	2	EA		*inc*
Bottling equipment	1	EA		*inc*
Storage and misc. equipment	1	EA		*inc*
Controls (see electrical)				
E1020 Institutional Equipment	**29,130**	**SF**	**0.51**	**15,000**
Kitchen equipment	1	LS	15,000.00	15,000
E1030 Vehicular Equipment	**29,130**	**SF**	**0.39**	**11,500**
Dock levelers	2	EA	4,500.00	9,000
Dock bumpers	1	LS	2,500.00	2,500
E1090 Other Equipment	**29,130**	**SF**	**1.50**	**43,695**
PA Equipment	29,130	SF	1.50	43,695
				1,170,195
E20 Furnishings				
E2010 Fixed Furnishings	**29,130**	**SF**	**9.69**	**282,342**
Barrel racks	1	LS	55,000.00	55,000
Clean storage	1	LS	12,500.00	12,500
White boards	6	EA	2,500.00	15,000
Reception desk	22	LF	285.00	6,270

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction

	Quantity	Unit	Rate	Total
Office and conference fit-outs	2,507	SF	33.00	82,731
Classroom fit-outs	2,507	SF	30.00	75,210
Reception and break area fit-out	1,926	SF	18.50	35,631
				282,342

F10 Special Construction

None required

				0

F20 Selective Demolition

F2010 Building Elements Demolition	**29,130**	**SF**	**0.73**	**21,139**
Minor works - site dependent	17,616	SF	1.20	21,139
F2020 Hazardous Components Abatement	**29,130**	SF		
None anticipated				*NIC*
				21,139

G10 Site Preparation

G1010 Site Clearing	**29,130**	**SF**	**0.74**	**21,492**
Clearing and grading	17,616	SF	1.22	21,492
G1030 Site Earthwork	**29,130**	**SF**	**1.69**	**49,325**
Fill and drainage layer	17,616	SF	2.80	49,325
				70,816

G20 Site Improvements

G2020 Parking Lots	**29,130**	**SF**	**3.25**	**94,673**
Parking area and access drive	18,935	SF	5.00	94,673
G2030 Pedestrian Paving	**29,130**	**SF**	**1.20**	**34,948**
Sidewalks and pathways	4,369	SF	8.00	34,948

Tumwater Craft Brewing & Distilling Center
Tumwater, Washington

Craft Brewing Center-New Construction

	Quantity	Unit	Rate	Total
G2040 Site Development	**29,130**	**SF**	**1.30**	**37,869**
Fencing and wayfinding	29,130	SF	1.30	37,869
G2050 Landscaping	**29,130**	**SF**	**1.18**	**34,500**
Street trees	10	EA	450.00	4,500
General landscaping	5,000	SF	6.00	30,000
				201,990

G30 Site Mechanical Utilities

G3010 Water Supply	**29,130**	**SF**	**3.95**	**115,000**
Domestic water and fire	200	LF	75.00	15,000
Water metering and backflow prevention	1	LS	100,000.00	100,000
G3020 Sanitary Sewer	**29,130**	**SF**	**4.26**	**124,000**
Piping and connections	200	LF	70.00	14,000
Sewer structures	1	LS	10,000.00	10,000
Sewer pump station	1	LS	100,000.00	100,000
G3030 Storm Sewer	**29,130**	**SF**	**0.38**	**11,000**
Piping and connections	200	LF	55.00	11,000
Stormwater treatment	1	LS	75,000.00	75,000
G3090 Other Site Mechanical Utilities	**29,130**	**SF**	**2.16**	**63,000**
Gas piping	200	LF	65.00	13,000
Utility connections at Custer Way	1	LS	50,000.00	50,000
				388,000

G40 Site Electrical Utilities

G4010 Electrical Distribution	**29,130**	**SF**	**3.78**	**110,000**
Electrical infrastructure	200	LF	550.00	110,000
G4020 Site Lighting	**29,130**	**SF**	**3.20**	**93,212**
Lighting	23,303	SF	4.00	93,212
				203,212